DR-2. AN EFFECTIVE SYNTHETIC APPROACH TO 2-(HETERO)ARYL-SUBSTITUTED THIENO[3,2-*b*]INDOLES, BASED ON THE FISCHER AND THE FIESSELMANN METHODS

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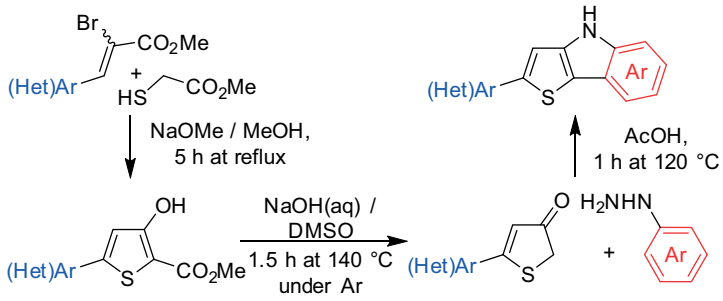
Thieno[3,2-*b*]indole is an important fused N,S-containing heterocycle, since a large number of its derivatives have found many practical applications in the field of medicinal chemistry as well as material science. In particular, over the past decade various types of linear p-conjugated and fused compounds based on thieno [3,2-*b*]indole system have been synthesized and used as molecular semiconductors for manufacture of high-performance thin-film electronic and photovoltaic devices. Therefore, the elaboration of convenient and robust synthetic routes to (hetero)arylated thieno[3,2-*b*]indoles is an important challenge, because these derivatives are in-demand as building blocks for organic electronic materials engineering.



Taking into account this fact, we have developed an effective approach towards 2-(hetero)arylthieno [3,2-*b*]indoles, involved the Fiesselmann synthesis of 5-(hetero)aryl-3-hydroxythiophene-2-carboxylates from methyl 2-bromo-3-(hetero)arylacrylates and methyl thioglycolate, next transformation of the prepared oxyesters into corresponding thiophen-3(2*H*)-ones, followed by their treatment with arylhydrazines to directly form the targeted structures via Fischer indolization [1]. The main advantages of present synthetic route are available starting substrates and convenient reactions based on transition metal-free processes, thereby it provides an easy access to a variety of (hetero)aryl-linked thieno[3,2-*b*]indoles.

References

1. *Irgashev R. A.*, *Steparuk A. S.*, *Rusinov G. L.* A new convenient synthetic route towards 2 (hetero)aryl-substituted thieno[3,2-*b*]indoles using Fischer indolization // Org. Biomol. Chem. The Royal Society of Chemistry. 2018. Vol. 16, № 26. P. 4821.

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